

CIRCULATION ELEMENT

TOWN OF TIBURON GENERAL PLAN

ADOPTED

NOVEMBER 16, 1994

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STATE OF TEXAS

IN SENATE,
January 11, 1905.
REPORT
OF THE
COMMISSIONER OF THE
GENERAL LAND OFFICE,
FOR THE YEAR
1904.
PREPARED BY
J. M. HARRIS,
COMMISSIONER.
DALLAS: THE TEXAS PRINTING CO., 1905.

TIBURON GENERAL PLAN

INTRODUCTION AND INTENT

This Circulation Element is required by California Government Code Section 65302(b). The Circulation Element includes discussion of traffic, roadways, transit, pedestrian, bicycling, parking and other forms of transportation. Pedestrian trails intended primarily for recreational purposes are addressed in the Parks & Recreation Element.

The purpose of this element is to show the general location and extent of existing and proposed major thoroughfares, transportation routes and other circulation facilities as well as to correlate the needs of the Land Use Element with the ability of the circulation system to serve those needs in a safe, adequate and effective way. Two diagrams, **C-1 Street System** and **C-2 Transit and Bicycle Routes**, are included as Appendix A of this Element.

DEFINITIONS

Approach

The lane or lanes from a single direction leading to an intersection prior to the cross street(s) at the intersection. Approaches to an intersection include all lanes, whether through, left-turn or right-turn.

Average Daily Traffic (ADT)

The amount of traffic passing a point within a segment of a street or highway. ADT is usually highest on a weekday. ADT is the number of vehicles which pass a particular point in both directions during 24 hours on an average weekday.

Average Stopped Delay

The amount of time (in seconds) which vehicles are stopped prior to entering an intersection, averaged over all approaches to the intersection.

Circulation

Circulation includes all forms of mobility. Circulation includes all modes of transportation, including walking. The State of California has termed this the "Circulation Element" in order that subjects other than transportation or traffic are discussed.

1. Introduction

The purpose of this document is to provide a comprehensive overview of the project's objectives, scope, and deliverables. This document serves as a reference for all project-related activities and is intended for the project team and stakeholders.

The project is designed to address the current challenges faced by the organization and to implement a solution that meets the needs of the business. The project team is committed to delivering high-quality results on time and within budget.

2. Objectives

3. Scope

The project will focus on the development and implementation of a new system that will streamline the business process. The project team will work closely with the business units to ensure that the system meets their requirements.

4. Deliverables

The project team will deliver a range of outputs, including a detailed project plan, a system design, and a fully implemented system. The project team will also provide regular updates to the project steering committee.

5. Risks

The project team has identified several risks that could impact the project's success. These risks include resource availability, budget constraints, and technical challenges.

6. Conclusion

The project team is confident that the project will be completed successfully and will deliver the desired benefits to the organization. The project team will continue to monitor the project's progress and will take corrective action as needed.

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Level of Service (LOS)

A criterion of adequacy and effectiveness applied to transportation facilities (e.g., intersections, roadway segments, etc.) used by traffic engineers. Appendix B contains tables showing the criteria for determining Level of Service.

Park-and-Ride

A combination of driving, parking and using transit.

Peak Hour

The time within a 24-hour period, primarily on weekdays, when the volume of traffic is greatest, expressed in 60-minute intervals.

Ridesharing

The process of using one vehicle to carry two or more persons, including carpooling, vanpooling and buspooling.

Standards

Measurements used to determine maximum or minimum levels of performance. If standards are not met, conditions must be improved to a point where standards are achieved and sustained.

Tiburon Wye

The junction of U.S. Highway 101 and Tiburon Boulevard (State Route 131), including the Tiburon Boulevard/Redwood Highway Frontage Road intersection on the east side of U.S. Highway 101.

Trip Reduction Methods

Conditions placed on development, such as provision for transit, ridesharing and permitted hours of operation, which would ensure the reduction of trips to or from that development to the maximum extent feasible.

Volume to Capacity Ratio

A measurement of actual traffic moving through an intersection in proportion to the maximum traffic-moving capacity of the intersection.

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CIRCULATION GOALS

- C-A. To build, maintain or improve the Tiburon Planning Area's roadway system to a measurable standard of effectiveness and safety in order to accommodate circulation between activity centers in the Tiburon Planning Area and to and from U.S. Highway 101.
- C-B. To provide convenient movement of local residents and visitors to their places of employment, shopping and recreation in the San Francisco Bay Area.
- C-C. To maintain all existing, as well as to design all future, residential streets with consideration of a combination of residents' safety, cost of maintenance, protection of residential qualities, and efficient use of the land by limiting traffic volumes, speed and noise in an attempt to maintain the livability of the streets.
- C-D. To provide an adequate means of circulation for emergency vehicles.
- C-E. To improve the safety of the circulation system for pedestrians and bicyclists.
- C-F. To develop transportation improvements and implementation measures that reduce traffic congestion both during the week and on weekends. Such measures require physical construction and should also include the use of trip reduction methods, such as encouragement of public transit use and ridesharing.
- C-G. To promote an integrated transportation system, including the preservation and enhancement of transit, in order that residents and visitors can efficiently and conveniently transfer and connect between different transportation modes.

CIRCULATION POLICIES

- C-1. Land use decisions shall take into consideration potential traffic impacts.

SECTION 1

1. The purpose of this document is to provide a description of the system and its components. This document is intended for use by the system administrator and the user.
2. The system is designed to provide a secure and reliable environment for the user. It is designed to be easy to use and to provide a high level of security.
3. The system is designed to be flexible and to be able to handle a wide range of data. It is designed to be able to handle data from a variety of sources and to be able to store data in a secure and reliable manner.
4. The system is designed to be able to handle a wide range of users. It is designed to be able to handle users from a variety of locations and to be able to handle users with different levels of access.
5. The system is designed to be able to handle a wide range of tasks. It is designed to be able to handle tasks from a variety of sources and to be able to handle tasks with different levels of complexity.
6. The system is designed to be able to handle a wide range of data. It is designed to be able to handle data from a variety of sources and to be able to store data in a secure and reliable manner.
7. The system is designed to be able to handle a wide range of users. It is designed to be able to handle users from a variety of locations and to be able to handle users with different levels of access.
8. The system is designed to be able to handle a wide range of tasks. It is designed to be able to handle tasks from a variety of sources and to be able to handle tasks with different levels of complexity.
9. The system is designed to be able to handle a wide range of data. It is designed to be able to handle data from a variety of sources and to be able to store data in a secure and reliable manner.
10. The system is designed to be able to handle a wide range of users. It is designed to be able to handle users from a variety of locations and to be able to handle users with different levels of access.

SECTION 2

1. The purpose of this document is to provide a description of the system and its components. This document is intended for use by the system administrator and the user.

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C-2. At the following intersections, the average peak hour level of service (LOS), shall not deteriorate below LOS C:

- o Tiburon Boulevard @ North Knoll Road*
- o Tiburon Boulevard @ E. Strawberry Drive/Bay Vista Drive
- o Tiburon Boulevard @ Blackfield Drive/Greenwood Cove Drive
- o Tiburon Boulevard @ Cecilia Way*
- o Tiburon Boulevard @ Reed Ranch Road*
- o Tiburon Boulevard @ Trestle Glen Boulevard
- o Tiburon Boulevard @ Stewart Drive*
- o Tiburon Boulevard @ Avenida Miraflores
- o Tiburon Boulevard @ Rock Hill Road
- o Tiburon Boulevard @ Gilmartin Drive*
- o Tiburon Boulevard @ San Rafael Avenue
- o Tiburon Boulevard @ Ned's Way*
- o Tiburon Boulevard @ Lyford Drive
- o Tiburon Boulevard @ Mar West Street*
- o Tiburon Boulevard @ Beach Road
- o All intersections along Paradise Drive*

At all other signalized intersections within the Tiburon Planning Area, the average peak hour level of service shall not deteriorate below LOS D, including the following:

- o E. Blithedale Avenue @ U.S. Highway 101 Southbound offramp.
- o Tiburon Boulevard @ U.S. Highway 101 Northbound offramp.
- o Tiburon Boulevard @ Redwood Highway Frontage Road.
- o Redwood Highway Frontage Road @ Seminary Drive.
- o Redwood Highway Frontage Road (Seminary Exit) @ U.S. Highway 101 Northbound offramp.

Level of service standards shall not apply until such time as intersections are signalized. At such time as unsignalized intersections meet signal warrants, the Town shall take action to provide signalization. However, the Town recognizes that its primary thoroughfare (Tiburon Boulevard) is under the control of the California Department of Transportation (Caltrans), and that improvements desired by the Town may not always be approved by Caltrans. The Town also recognizes that several intersections within the Planning Area are located in Marin County jurisdiction, and any improvement to these would also require concurrence and approval by Marin County.

Circulation system improvements necessary to maintain acceptable levels of service and/or safety are generally described under the section of this Element entitled "Proposed Circulation System Improvements".

* Unsignalized as of the adoption date of this Circulation Element.

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- C-3. Funding has not been identified for all of the circulation improvements set forth in this Element as necessary to maintain acceptable levels of service, nor can Caltrans approval of circulation improvements be guaranteed. Where funding for an improvement is not assured at the time of a project application, or where Caltrans and/or Marin County approval of circulation improvements cannot be guaranteed, a project shall be evaluated in accordance with applicable policies of the general plan, but shall not be denied based upon the inability of the project sponsor to guarantee that circulation improvements will be funded or constructed.
- C-4. All new development shall be required to pay a pro rata share of needed traffic improvements in accordance with the burden created by such new development, based upon the list of "Proposed Circulation System Improvements" contained within this Element, and cost estimates thereof.
- C-5. Funding mechanisms needed to implement the circulation system proposed in this Element should be set by ordinance or resolution.
- C-6. The Town should develop and maintain a traffic monitoring program to periodically determine intersection levels of service and evaluate project proposals.
- C-7. In connection with the Tiburon Ridge policy of the Open Space Element, the Town shall ensure that no crossing streets or highways are developed along or over the Ridge except for the purpose of emergency services.
- C-8. The Town shall encourage overhead utility lines to be placed underground along Tiburon Boulevard, Paradise Drive, and Trestle Glen Boulevard.

Transit Policies

- C-9. The Town should make available schedules of the Golden Gate Bridge Highway and Transportation District buses, Red and White Fleet ferries, and Angel Island Ferry as well as Muni buses that connect with those modes.
- C-10. The Town should encourage the Golden Gate Bridge, Highway and Transportation District to service commutes in the morning and evening with buses currently deadheading (returning to yard empty) on Tiburon Boulevard.

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- C-11. With the consent of the Golden Gate Bridge, Highway and Transportation District, the Town should provide and maintain attractive, covered, unobtrusively lighted seating areas at all bus stops along Tiburon Boulevard, subject to design review approval.
- C-12. The Town should encourage Caltrans to provide formal park-and-ride facilities along existing Golden Gate Bridge, Highway and Transportation District bus routes.

Tiburon Boulevard Policies

- C-13. The entire section of Tiburon Boulevard between Avenida Miraflores and Mar West Street should be maintained in a rural manner with informal parking prohibited unless gravel or other hard surfaces are provided.
- C-14. The section of Tiburon Boulevard between Rock Hill Drive and San Rafael Avenue should be improved with landscaping. Parking shall be prohibited to enhance and preserve views and the experience of a waterfront drive. Where appropriate, native vegetation on or adjacent to the scenic roadway should be retained. New landscaping materials should be drought-tolerant and should maintain a rural, un-manicured look.
- C-15. The Town should work with Caltrans to develop a mutually acceptable design program for Tiburon Boulevard that is consistent with the Circulation Element.
- C-16. Water views for pedestrians and drivers should not be obscured. Overgrown planting should be trimmed to frame rather than block, views, to the maximum extent feasible.
- C-17. Tiburon Boulevard between Trestle Glen Boulevard and Mar West will remain two (2) travel lanes. Any widening of the Trestle Glen/Tiburon Boulevard intersection will allow for transition of Tiburon Boulevard to two (2) travel lanes just east of Trestle Glen Boulevard.
- C-18. Street lights should be installed only at intersections or where required for safety purposes. Light sources should be of a warm, subdued nature and should be properly shielded.
- C-19. Bus stops should be located to avoid interference with turning and passing vehicles. Bus shelters shall be coordinated with Golden Gate Transit and shall require design review approval. Telephones at or near bus stops

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are preferable. Shelters are desirable. Benches and paved loading pads shall be provided at all bus stops.

Paradise Drive Policies

- C-20. Driveways along Paradise Drive should be discouraged. New development shall explore other options for access, and where feasible avoid driveways on Paradise Drive. Additional new roads that will intersect Paradise Drive shall be kept to the minimum number possible and be situated in safe locations.
- C-21. Where appropriate, scenic overlooks should be established along Paradise Drive.
- C-22. Views from Paradise Drive should be preserved wherever possible.
- C-23. Turn-outs and shoulders on Paradise Drive should be created wherever possible to protect the health and safety of its users. Paradise Drive should be widened where possible to accommodate bike lanes and, where possible, improve the sight distance around curves and at intersections.

Parking Policies

- C-24. The Town should encourage reciprocal parking facilities for those businesses located near one another with different peak hour operating demands.
- C-25. The Town should study measures to finance facilities and programs which will improve parking and circulation in Downtown Tiburon.
- C-26. The Town should discourage parking lots or facilities which have frontage on Tiburon Boulevard. To the extent feasible, all parking lots should be screened by buffers or berms.

Downtown Policies

- C-27. The Town should consider the acquisition of a Town-owned and operated downtown parking facility.
- C-28. Pedestrian access to the waterfront should be encouraged in Downtown Tiburon.

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- C-29. Adequate parking and loading should be provided for all new uses and expansion of existing uses in Downtown Tiburon in accordance with the Zoning Ordinance. Multi-level parking structures and other parking facilities which rise above finished grade level shall not be allowed in order to retain the pedestrian scale and small town character of the Downtown.
- C-30. The pedestrian walkways and bicycle trails in Downtown Tiburon should connect with other trails in the Town of Tiburon when practical.
- C-31. Bicycle racks should be encouraged in Downtown Tiburon.

Disabled Access Policy

- C-32. Provisions for disabled persons should be required. Such provisions should include barrier-free access to all public/quasi-public buildings, elevator access where necessary, parking spaces, access to all transit modes, and street and sidewalk access for wheelchairs where possible.

Bicycle and Pedestrian Policies

- C-33. The Town should study the feasibility of longer signal periods to accommodate the needs of pedestrians crossing Tiburon Boulevard.
- C-34. Multi-use paths for bicycles and pedestrians should be constructed along existing streets and within open space areas in order to provide safe access to schools, playgrounds and other areas with scenic attractions. A bike lane may be constructed on Trestle Glen Boulevard.
- C-35. Pedestrian routes, particularly for school children, should be designated for all neighborhoods.
- C-36. <Reserved>

Regional Transportation Planning Policy

- C-37. The Town will engage in good faith, participatory planning toward alleviating congestion in the U.S. Highway 101 Corridor.

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SUGGESTED PROGRAMS TO HELP IMPLEMENT CIRCULATION ELEMENT

- C-a. Develop and maintain a periodic traffic monitoring program within the Tiburon Planning Area.
- C-b. Coordinate with Marin County the adoption of complementary roadway improvement and mitigation fee programs for intersections located in unincorporated sections of the Tiburon Planning Area.
- C-c. Adopt a Public Facilities Fee Ordinance in accordance with Government Code 66000 et seq. to justify the collection of fees to complete the circulation system as described herein.
- C-d. Maintain an active role in the Marin County Congestion Management Agency and/or U.S. Highway 101 Corridor planning program with the purpose of ensuring that the improvements eventually provided enhance inter-city movement.
- C-e. Prepare and adopt a traffic, pedestrian and parking plan for Downtown Tiburon. Parking for Angel Island use shall be included in the plan.
- C-f. Encourage provision of adequate transit facilities in cooperation with other agencies.
- C-g. <Reserved>
- C-h. Consider undertaking a feasibility study of a Tiburon shuttle. The objective of the shuttle should be to reduce trips on Tiburon Boulevard.
- C-i. <Reserved>
- C-j. Adopt a bicycle lane plan to prioritize improvements to the bicycle lane system.

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PROPOSED CIRCULATION SYSTEM IMPROVEMENTS

The Town circulation system needed to accommodate the development potential allowed in this general plan is the current system supplemented by the improvements listed below. The level of service standards specified in this Element shall not be exceeded by land uses allowed in the land use element, provided that the circulation system improvements described below, or their functional equivalent, are completed within the time frame of the General Plan (Year 2005). Traffic mitigation fees charged by the Town shall be based upon this list of circulation system improvements. The following is a general description of each circulation improvement necessary to complete the Circulation System. Detailed design of such improvements is not feasible or appropriate at this time and would be the subject of later review. Additional supporting information concerning the Town's traffic modeling and projected intersection levels of service may be found in Appendix C of this Element. Baseline traffic counts from 1987 are included in Appendix D of this Element.

BEFORE YEAR 2005 (GENERAL PLAN PROJECTED BUILDOUT)

1. E. Blithedale Avenue @ Southbound U.S. 101 Off-Ramp

The stacking capacity of the off-ramp shall be increased, and/or traffic flow through the intersection improved. Options include providing four turn lanes at the actual intersection (an increase from the three existing turn lanes; reconfiguring the off-ramp to provide two exit lanes; or coordinating traffic signals in the vicinity.

2. Tiburon Boulevard @ Redwood Highway Frontage Road

Add one through lane each way on Tiburon Boulevard; add a left-turn lane to Northbound Redwood Highway Frontage Road.

3. Tiburon Boulevard @ Cecilia Way

The intersection would be signalized. Pedestrian safety should also be improved.

4. Tiburon Boulevard @ Reed Ranch Road

Signalization or other working solutions should occur in conjunction with a relocated entrance to Blackie's Pasture Park. A relocated entrance to Blackie's Pasture Park may be necessary to accommodate the widening of Tiburon Boulevard through the Trestle Glen Boulevard intersection. If the Park entrance

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relocation is necessary, both of these improvements should be coordinated.

5. Tiburon Boulevard @ Trestle Glen Boulevard

Add a through lane each way on Tiburon Boulevard. If only one new lane can be accommodated, it should be for the westbound direction. Complex alternative signalized improvements, featuring a new entrance to Blackie's Pasture Park and rebuilt intersections with Jefferson Drive and Trestle Glen Boulevard, all working in union and providing similar capacity increases, may also be considered. No significant encroachment into Blackie's Pasture, other than during construction, is proposed.

6. Coordination of Traffic Signals

Coordinate traffic signals along Tiburon Boulevard from the Southbound Off-ramps to Trestle Glen Boulevard, as appropriate.

7. Tiburon Boulevard @ Stewart Drive

An improved bus stop area would be installed at the southeast corner of the intersection.

8. Tiburon Boulevard segment between Avenida Miraflores and Rock Hill Road

Widen portions of this segment to provide adequate shoulders and room for bicycles and emergency vehicle passage. Stabilize embankments as needed. (Note: This is a safety improvement, not a capacity improvement).

9. Tiburon Boulevard segment between San Rafael Avenue and Ned's Way

Add a left-turn center lane as appropriate.

10. Tiburon Boulevard @ Ned's Way

Improve turning movements onto Tiburon Boulevard.

11. Tiburon Boulevard segment between Lyford Drive and Mar West Street

Construct a gravel park-and-ride lot with median divider consistent with the rural character of the Town. Provide landscape/drainage improvements. (NOTE: The landscape and drainage improvements are aesthetic in nature and do not increase roadway capacity).

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12. Tiburon Boulevard @ Mar West Street

The intersection would be signalized.

CIRCULATION ELEMENT BACKGROUND AND DISCUSSION (FOR INFORMATION PURPOSES ONLY)

FUTURE EVALUATION PROCEDURES FOR DEVELOPMENT

Future applications for development entitlements should be reviewed for circulation both by the Town and the County of Marin. The following procedures should be followed for future evaluation and survey of traffic conditions.

Testing Existing Circulation Facilities to Accommodate Land Use Proposals

All developer-initiated studies should be uniform in their data and methodology. When development proposals are made, their individual and cumulative impacts on existing circulation facilities must be evaluated and compared to standards set by the Tiburon General Plan and criteria used by the Transportation Research Board, National Research Council, Highway Capacity Manual. Determination of performance of circulation facilities should be accomplished by registered traffic or civil engineers. This is ordinarily undertaken as part of the California Environmental Quality Act process.

SAFETY IMPROVEMENTS

The Town of Tiburon has a Traffic Safety Committee, headed by the Chief of Police, which meets regularly to discuss and consider traffic safety improvements and address traffic safety issues raised by citizens.

The following are several potential improvements to the circulation system to be considered by the Town, and by the Traffic Safety Committee where appropriate, for safety reasons:

General Improvements

1. At each signalized intersection, consider the adequacy of "WALK" times which are or may be provided.

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2. Consider the installation of flashing signals at existing crosswalks where necessary for safe crossing of Tiburon Boulevard.

Specific Improvements

1. Consider the installation of stop signs along Seminary Drive where warranted. (This street is currently in Marin County jurisdiction).
2. Consider the improvement of turning movement safety at the Tiburon Boulevard/North Knoll Road intersection. (This intersection is currently in Marin County jurisdiction).
3. Study the traffic circulation and parking from the Cove Shopping Center and develop and implement the needed improvements. Using the information developed, determine the feasibility of a second entrance to Tiburon Boulevard.
4. Consider installation of flashing signals, median barriers, or other appropriate improvements on Tiburon Boulevard between Cecilia Way and Blackfield Drive to increase safety of pedestrians crossing Tiburon Boulevard.
5. Consider methods to improve turning movement safety and pedestrian crossing safety at the Tiburon Boulevard/Reed Ranch Road intersection.
6. Consider methods to improve turning movement safety and pedestrian safety at the Tiburon Boulevard/Stewart Drive intersection.
7. Consider a relocated entrance to the Belvedere Tennis Club, possibly in conjunction with a 4-way intersection at Tiburon Boulevard and Rock Hill Road.
8. Consider a bike lane and other improvements to promote pedestrian and bicycle safety on the segment of Mar West Street between Tiburon Boulevard and the Tiburon Peninsula Club.
9. Consider signage improvements along the stretch of Paradise Drive between Mar West Street and Solano Street.
10. Consider methods to improve bicycle and pedestrian safety along Paradise Drive.

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CLASSIFICATION OF ROUTES

The classification of routes is an organizational concept for proper planning, but does not necessarily reflect the actual capacities of streets within the Planning Area. The Planning Area has numerous streets with less than normal capacity because of steepness, narrowness, poor sight-lines, or other factors.

With few exceptions, the streets in the Tiburon Planning Area are local streets. For the purposes of this Element, thoroughfares which would generally fall into the category of freeways, major arterials, minor arterials, and collector streets, are depicted on Diagram C-1, Street System. All other streets would generally be classified as sub-collectors or local streets.

Freeway (U.S. Highway 101)

A limited access facility, with dual lanes divided by a median and having no at-grade intersections or curb cuts to adjoining land uses. Access to these facilities is usually only at interchanges and volumes range from 50,000 vehicles daily to over 200,000 vehicles daily. Such facilities are usually owned and operated by a State agency (Caltrans).

Arterial Street

Principal Arterial Street (Tiburon Boulevard from U.S. Highway 101 to Trestle Glen Boulevard). Principal arterial streets connect major activity centers (e.g., Downtown Tiburon and Strawberry Shopping Center) within the urbanized area. Principal arterial streets provide direct access to abutting land and carry local traffic and sub-regional traffic. These facilities carry traffic in the range of 25,000 to 50,000 vehicles daily. Principal arterials connect with other principal arterial streets and freeways and are usually multi-lane, divided facilities.

Minor Arterial Street (Tiburon Boulevard from Trestle Glen Boulevard to Downtown Tiburon, all of Trestle Glen Boulevard and all of Redwood Highway/Frontage Road). Minor arterial streets augment the principal arterial street system. These streets provide greater access to abutting land and usually carry more locally oriented traffic than does a principal arterial street. They provide the intra-community continuity that the primary arterials do not. Minor arterial streets carry traffic in the range of 10,000 to 25,000 vehicles a day. They can be two-lane or multi-lane facilities with intersection turn lanes and/or continuous two-way, center left-turn lanes. Minor arterial streets connect with other minor arterial streets and with principal arterial streets.

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Collector Street

Collector streets collect traffic from the local street system and channel it to the arterial street system. Collector streets serve residential and commercial neighborhoods. Collector streets carry traffic in the range of 2,000 to 12,000 vehicles a day and are usually two-lane facilities. These streets carry mostly traffic generated from within neighborhoods or districts they serve but can carry some through traffic from outside of the immediate area as well. Curb cuts (driveways) should be minimized on all collector streets.

Commercial Collector Street. Commercial collector streets serve primarily land uses which are commercial in nature. They tend to have higher ADTs than residential collector streets.

Residential Collector Street. Residential collector streets are residential streets and serve primarily land uses which are residential in nature with very few curb cuts (driveways) serving adjacent land use. Residential collector streets should be limited to 2,000 vehicles per day.

Residential Sub-Collector Street

Residential sub-collectors streets are residential streets that serve the function of collector streets in residential neighborhoods. Curb cuts (driveways) to adjacent land uses are permitted. These streets tie local streets to collector streets. Direct connections to arterial streets should not be permitted. Residential sub-collector streets should not have ADTs higher than 1,000 vehicles per day.

Local Streets

Local streets serve adjacent residential or commercial property. All streets not otherwise classified are local streets, carrying traffic from the immediate land use. Local streets are two-lane facilities and carry less than 500 vehicles per day. Through traffic from outside the immediate neighborhood should not use local streets. Local streets should connect to sub-collector and collector streets and should not connect directly to arterial streets.

TRANSPORTATION SETTING

The entire Bay Area is characterized by a lack of access between the nine counties due to the area's dependence upon bridges. Marin County is only accessible by vehicle from the south via the Golden Gate Bridge and from the east from the Richmond-San Rafael

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Bridge and State Route 37. Access from the north is principally by land, over U.S. Highway 101.

Marin County itself is limited to only one through highway, U.S. Highway 101, thereby concentrating all of its intra-regional and inter-regional traffic on one freeway.

Similar to Marin County, the Tiburon Planning Area has limited access points: Tiburon Boulevard being the major entryway and Seminary Drive and Paradise Drive having secondary roles in access to the area. The Tiburon Planning Area is essentially water-locked and access is limited to the three roads named above.

Other transportation modes serve the Tiburon Planning Area, including Golden Gate Bridge, Highway and Transportation District buses, the Red and White Fleet ferry service from San Francisco, and Angel Island Ferry Service to Angel Island State Park. These modes play a critical role in supplementing the limited vehicular access to the Tiburon Planning Area and must be preserved and enhanced when at all possible.

Personal modes within the Tiburon Planning Area are the bicycling and pedestrian use of lanes, paths and trails.

THE TRAFFIC "PROBLEM"

Transportation is regarded as the Bay Area's number one problem. Marin County is a traffic-impacted county because of its heavy dependence upon U.S. Highway 101 and the relative lack of transit facilities throughout the County. The Tiburon Peninsula bears the same relationship to Tiburon Boulevard, State Route 131.

Measurement of the transportation "problem" is difficult, but most people believe that the problem relates to traffic and congestion. Traffic congestion is, in part, a result of growth in development and the resulting vehicle traffic increases are often in close correlation with growth in development. But growth in development is only one cause of increased traffic in the Tiburon Planning Area. Sightseers and tourists are a substantial part of the weekend (and increasingly the weekday) traffic on Tiburon Boulevard, Paradise Drive and Trestle Glen Boulevard.

During the preparation of traffic studies over the years, it has been noted that Tiburon Boulevard experiences substantial day-to-day variations in traffic volumes. The reasons for these variations are not known, and the variations do not appear to be easily explained. Seasonal traffic volume variations have also

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been noted, with increased tourism considered a major likely factor behind summertime variations.

PEDESTRIAN CROSSINGS OF TIBURON BOULEVARD

In many intersections with Tiburon Boulevard such as Reed Ranch Road and Cecilia Way, crosswalks do not exist and residents cross without benefit of sight distance or warnings to oncoming traffic. Even at crosswalks on Tiburon Boulevard, residents are fearful for their safety. Stoplights offer limited security, since they change rapidly and offer insufficient time for many to cross. Measures must be considered to improve this problem.

TRAVEL CHARACTERISTICS OF THE TIBURON PLANNING AREA

Home-Based Trips

Trip generation studies have been made of the frequency that residential areas in Tiburon generate traffic during the "normal commute hours." The results of those surveys show that peak hours in the Tiburon Planning Area are from 8:00 to 9:00 A.M. in the morning, and from 5:00 to 6:00 P.M. in the afternoon.

School-based trips form a substantial proportion of home-based trips on weekdays during in-school months. The peak hours for school-based trips are from approximately 8:00 to 9:00 A.M. and 2:30 to 3:30 P.M. Therefore, school-based trips form part of the AM peak hour traffic volumes, but not the PM peak hour traffic volumes. School-based trips in the afternoon contribute significantly to congestion on Tiburon Boulevard, and combined with the afternoon work commute, can make driving along Tiburon Boulevard on many week-day afternoons a slow and somewhat frustrating experience. Increased busing and car-pooling could noticeably reduce congestion caused by school-based trips.

Non-Home-Based Trips

Without any origin and destination studies, it is assumed that drivers are using Tiburon Boulevard for purposes of sightseeing and recreation. Some sightseeing trips are destination oriented and others are pleasure drives from one part of the Bay Area to another. Weekend traffic counts taken since 1950 show an increase of approximately 1% per year. This increase is in part due to tourism and out-of planning area origins and destinations.

Propensity to Drive

One of the factors leading to increased vehicular trips is the increased propensity to travel by car. The average person

TIBURON GENERAL PLAN

travels more miles each year by car than in previous decades. Also, the number of vehicles per licensed driver has been rising in recent decades. In Tiburon in 1990, there were 6,591 vehicles, an average of 2.0 per household. There were more vehicles (6,591) than licensed drivers (approx. 6,000) in Tiburon in 1990.

Transit Trips

Red and White Fleet

Harbor Carriers, popularly known as the Red and White Fleet, is a division of Crowley Maritime, Inc. The Red and White Fleet runs commuter ferries between the Ferry Building in San Francisco and the ferry landing dock in Downtown Tiburon. On weekdays, the Red and White Fleet has three trips from Tiburon to San Francisco and two from San Francisco to Tiburon in the mornings and four trips from San Francisco to Tiburon and three trips from Tiburon to San Francisco in the evenings.

The Red and White Fleet provides mid-day ferry service on weekdays and weekends from Tiburon to Fisherman's Wharf in San Francisco. This service begins at San Francisco, stops in Sausalito and proceeds to Tiburon. This service is used primarily by tourists.

The Red and White Fleet expects further increases in commuter ridership with the current schedule and equipment.

The weekday commuter runs of the Red and White Fleet are serviced by the Golden Gate Bridge, Highway and Transportation District (GGBHTD) feeder bus which operates on both collector streets and some local streets in the Tiburon Planning Area. This service is required by the Urban Mass Transit Administration. Approximately 10% of the Red and White Fleet ridership uses the GGBHTD feeder buses. The majority of Red and White Fleet passengers park and ride to the ferry terminal or are dropped off and picked up.

The facilities for dropping off passengers and parking are informal and lead to the following problems:

- Cars often must wait at the confluence of Paradise Drive, Tiburon Boulevard and Main Street to pick up or drop off passengers. The waiting vehicles block vehicular and pedestrian traffic.
- Some ferry riders use paid parking facilities and others park illegally.

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The Red and White Fleet serves to relieve Tiburon Boulevard of peak-hour traffic. However, parking and traffic flow problems in Downtown Tiburon from commuter ferry service will probably get worse as ferry ridership increases.

Golden Gate Bridge Highway and Transportation District

The Golden Gate Bridge, Highway and Transportation District (GGBHTD) operates all regularly scheduled buses throughout the Tiburon Planning Area. Three types of GGBHTD service are offered:

- Trans-bay service (Marin to San Francisco and return), available via Routes Number 8 and Number 10.
- Intra-county service (destinations within Marin County), available via Routes Number 1 and Number 21.
- Ferry feeder service (connecting to the Red and White Fleet ferry service in Downtown Tiburon) available via Routes Number 9 and Number 11.

GGBHTD funds the operation of trans-bay service and ferry feeder service. The Marin County Transportation District (MCTD) funds the operation of intra-county service. GGBHTD owns all of the buses and employs all of the personnel. MCTD transfers funds to GGBHTD for operating the intra-county service.

The trans-bay service is used more frequently than the other services in the Tiburon Planning Area. Route Number 8 is a commute run, operating at peak hours only, and has declining ridership. Recently, GGBHTD cut back the number of buses running each weekday on this route, and more cuts are projected within the next five years. The declining ridership is primarily a function of fewer people working in San Francisco. Route Number 10 has a steady ridership.

The ferry feeder service and the intra-county service are likely to continue at their current levels under the new GGBHTD five-year plan, although rearrangement of routes is likely to occur. Route Number 10, which services downtown San Francisco via Mill Valley and Sausalito, may in the future become a trunk route limited to U.S. Highway 101 service. Access to U.S. Highway 101 would have to be provided by a shuttle bus at the expense of, and operation of, local governments such as the Town of Tiburon.

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Angel Island Ferry

The Angel Island Ferry Service operates between Main Street in Downtown Tiburon and Ayala Cove on Angel Island. While primarily recreational, it does provide limited transit for State Park employees, docents, and service providers conducting business on the Island. The Angel Island Ferry service has two ferries in its fleet, and has been in continuous operation since approximately 1960. On summer week-ends, the ferry runs hourly from 10 A.M. to 5 P.M., and on winter week-ends the ferry runs hourly from 10 A.M. to 4 P.M.. Week-day service is limited in summer, and by advance reservation only in winter.

Parking for Angel Island Ferry users is currently non-designated and generally occurs throughout the Downtown. It is encouraged by signage at the Tiburon Boulevard Parking Lot on a year-round basis, and by signage at the Boardwalk Shopping Center Parking Lot on week-ends from April through November. Tour groups generally use either Main Street or the designated loading zone adjacent to Shoreline Park for loading and unloading of ferry-bound passengers.

PARKING

Parking occurs in the Tiburon Planning Area in two general locations: on-street, subject to limitation and restriction in some areas and off-street, commonly in parking lots serving adjacent or nearby land uses.

Adequate parking is generally provided for in all commercial areas of the Tiburon Planning Area except for Downtown Tiburon. There are an estimated 1,200 parking spaces in and around Downtown Tiburon, both on-street and off-street, with a demand that occasionally exceeds supply. Some of the off-street parking spaces are available at a cost, while others are available for patrons of particular establishments and still others as validated parking for groups of establishments. As a result, the parking spaces which are either too expensive or unavailable lead frustrated drivers to violate the parking code, both on-street and off-street.

PERSONAL TRANSPORTATION MODES

There are many people who enjoy personal transportation modes such as bicycling and walking in the Tiburon Planning Area. While these modes are primarily a form of recreation, they are used by many as a means of transportation to access transit or to reach educational and recreational destinations.

TIBURON GENERAL PLAN

Bicycles

Bicycles commonly use three types of facilities as categorized by Caltrans:

1. Class I Routes, or exclusive bike paths. These routes have their own rights-of-way, such as the Tiburon Multi-Use Path. The Tiburon Multi-Use Path is used by bicyclists, pedestrians, joggers, and various other modes. Motorized vehicles are prohibited.
2. Class II Routes, or bike lanes. These facilities are striped, thereby indicating a portion of the roadway available for bicyclists, such as on Tiburon Boulevard in Downtown Tiburon.
3. Class III Routes, or shared facilities with other modes. Most local streets are Class III Routes, because they freely share the roadway between bicycles and vehicles.

The location of Class I and Class II Bike Routes is shown in Diagram C-2, Transit and Bicycle Routes. Class III routes are generally available on all other routes except for U.S. Highway 101.

Pedestrians

Pedestrians use various facilities to and from their origins and destinations: there are sidewalks alongside some arterial and collector streets, although most local streets in Tiburon do not have sidewalks. Within open space areas and within recreational facilities, paths or trails are the common method of pedestrian circulation. Policies concerning such paths and trails are contained in the Parks and Recreation Element.

The conflict between pedestrians and vehicles is of increasing importance in the Tiburon Planning Area as both traffic congestion and pedestrian use increase.

Safety is an increasing concern of the Tiburon Planning Area and must be a factor in planning for future circulation.

TIBURON GENERAL PLAN

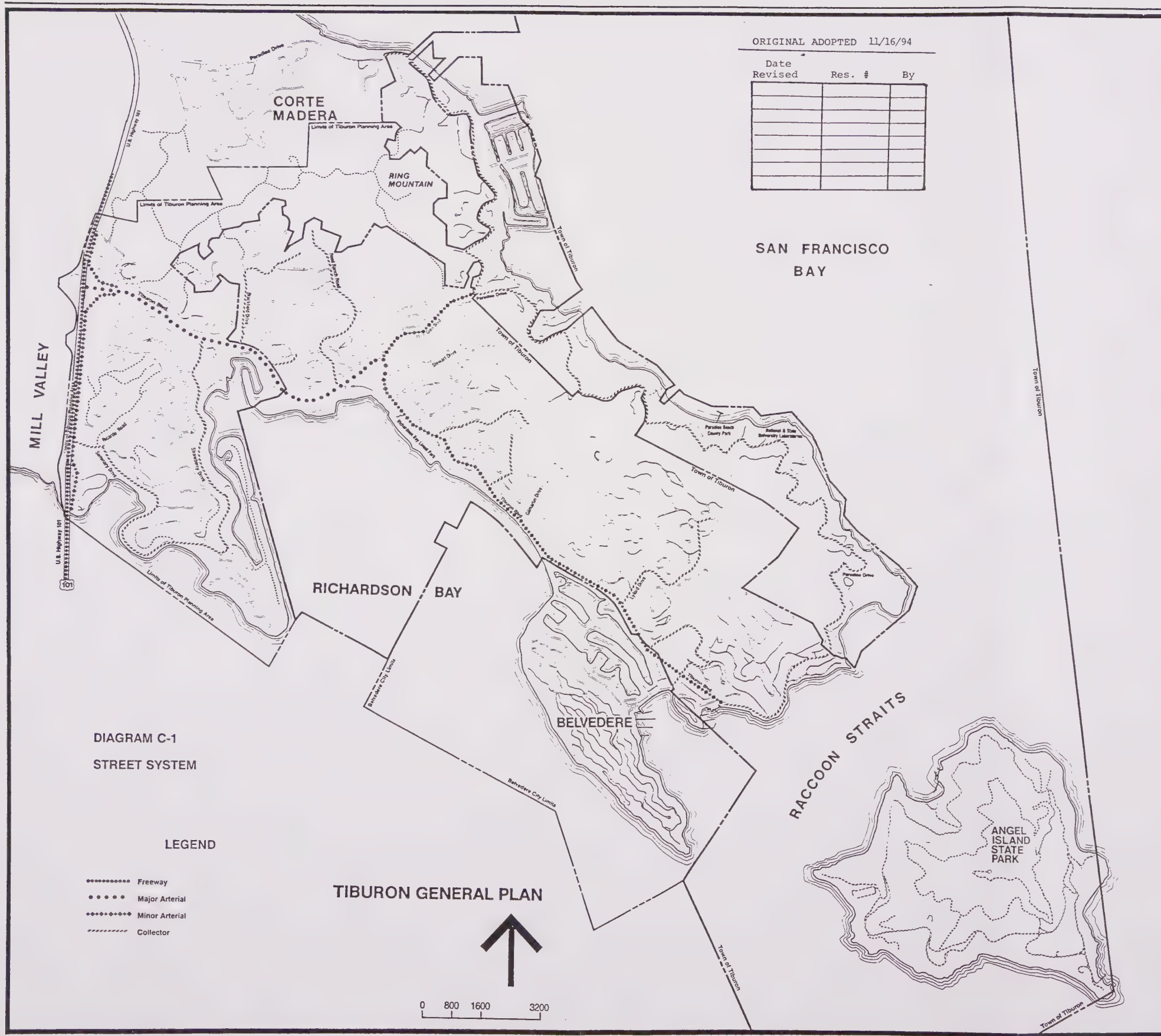
New Development and Personal Modes

All commercial and public/quasi-public facilities should provide adequate facilities for bicyclists and pedestrians. These include bicycle racks, bicycle curb cuts, gathering places for pedestrians and outdoor benches. The provision of these items should be a regulation enforced by the Tiburon Zoning Ordinance.

Personal modes should be carefully defined so as to include truly personal vehicles such as motorscooters and motorized bicycles, but not freeway vehicles such as motorcycles.

TIBURON GENERAL PLAN

APPENDIX A: CIRCULATION ELEMENT DIAGRAMS

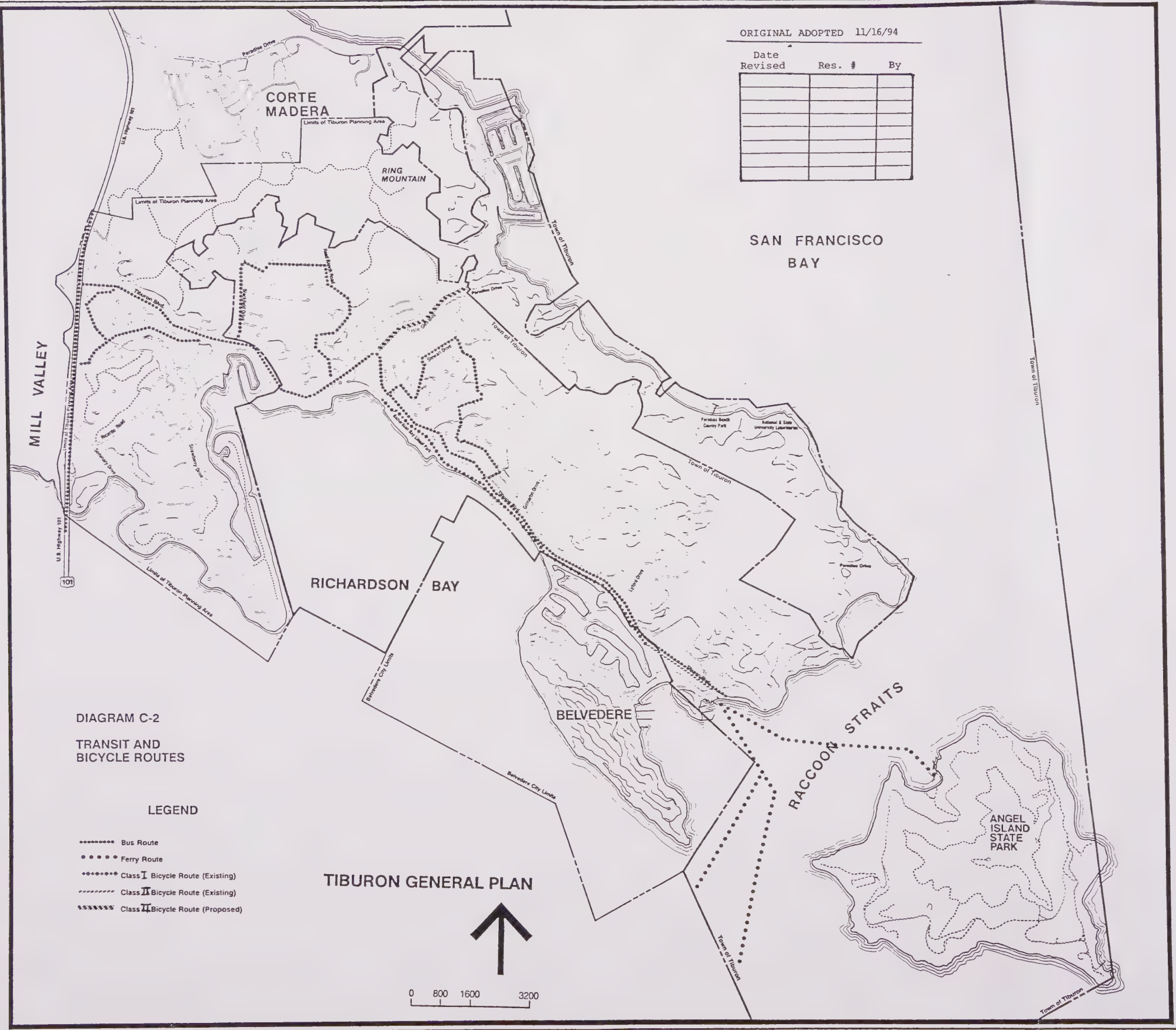


ORIGINAL ADOPTED 11/16/94

Date Revised	Res. #	By

DIAGRAM C-1
STREET SYSTEM

DIAGRAM C-1
STREET SYSTEM



ORIGINAL ADOPTED 11/16/94

Date Revised Res. # By

DIAGRAM C-2
TRANSIT &
BICYCLE ROUTES

TIBURON GENERAL PLAN

APPENDIX B: LEVEL OF SERVICE TABLES FOR "AVERAGE STOPPED DELAY" AND "VOLUME TO CAPACITY RATIO"

Level of Service Criteria for Signalized Intersections

Level of Service	Average Stopped Delay per Vehicle
A	up to 5.0 seconds
B	5.1 to 15.0 seconds
C	15.1 to 25.0 seconds
D	25.1 to 40.0 seconds
E	40.1 to 60.0 seconds
F	over 60.0 seconds

Source: Transportation Research Board, National Research Council, Highway Capacity Manual, Special Report 209, 1985, Table 9-1.

Levels of Service Definitions for Tiburon Boulevard

Level of Service	Volume to Capacity	Characteristics
A	0.33 or less	Free flowing, unconstrained maneuverability
B	0.34-0.45	Free flowing, minimal constraint in maneuverability. Speed about 70% of LoS A.
C	0.46-0.65	Maneuverability somewhat constrained. Speed reduced to about half of LoS A.
D	0.66-0.80	Maneuverability constrained. Speed about 40% of LoS A.
E	0.81-1.00	Near capacity operation with speeds 1/3 or less than that of LoS A.
F	greater than 1.00	Theoretically unable to move traffic.

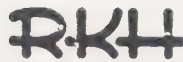
Source: RKH, Civil & Transportation Engineering

TIBURON GENERAL PLAN

APPENDIX C: TRAFFIC COUNT DATA AND INFORMATION ON THE TIBURON TRAFFIC MODEL

This appendix contains the traffic study upon which the Circulation Element list of "Proposed Circulation System Improvements" was based as of the adoption date of the Element. Periodic updates and adjustments of the traffic model are made based upon more recent traffic studies and traffic counts.

Please refer to the Tiburon Planning Department for information concerning the most current traffic studies and traffic model adjustments.



Civil and Transportation Engineering

TRAFFIC STUDY

**MARINERO ESTATES
TIBURON, CALIFORNIA**

March 30, 1993

Prepared for -

LSA Associates
157 Park Place
Point Richmond, CA 94801

RECEIVED
TOWN OF TIBURON

APR 14 1993

**DEPARTMENT OF
COMMUNITY DEVELOPMENT**

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- A. Base Traffic Data
- B. TRAFFIX Model Analyses Data

Preface

A traffic model was developed in 1987 to analyze cumulative development in the Tiburon-Belvedere-Strawberry area for the Measure "C" Initiative. Subsequent to that work the traffic model was again used in 1988 to analyze alternative land use development scenarios for the revisions to the General Plan. The current General Plan was adopted in 1989.

Following adoption of the General Plan in 1989, the traffic model was used again to analyze the impacts of cumulative development in the study area. In 1991 the traffic model was upgraded using the TRAFFIX model program and was used to analyze a refined land use projection for the study area. In 1992 the model was used to determine the impacts of a further refinement in the land use projections.

In this study the 1991 TRAFFIX model has been updated and refined and has been used to analyze the impacts of the proposed 30 unit, Marinero Estates residential development served by Lyford Drive. The traffic analysis in this study is for the year 2005, the limit of the current Tiburon General Plan.

Section I.

1993 Base Traffic

Study Area Intersections

The TRAFFIX model covers the entire Tiburon peninsula, but the intersections analyzed within the model are all on Tiburon Boulevard/E. Blithedale Avenue. The study area (General Plan) intersections are:

- E. Blithedale Avenue & SB 101 Off-Ramp
- Tiburon Boulevard & NB 101 Off-Ramp
- Tiburon Boulevard & Frontage Road (The Wye)
- Tiburon Boulevard & N. Knoll Road
- Tiburon Boulevard & Strawberry Drive/Bay Vista Drive
- Tiburon Boulevard & Blackfield Drive/Greenwood Beach Road
- Tiburon Boulevard & Cecilia Way
- Tiburon Boulevard & Reed Ranch Road
- Tiburon Boulevard & Trestle Glen Boulevard
- Tiburon Boulevard & Stewart Drive
- Tiburon Boulevard & Avenida Miraflores
- Tiburon Boulevard & Rock Hill Drive
- Tiburon Boulevard & Gilmartin Drive
- Tiburon Boulevard & San Rafael Avenue
- Tiburon Boulevard & Lyford Drive
- Tiburon Boulevard & Mar West Street
- Tiburon Boulevard & Beach Road

Peak period traffic counts were taken at these intersections in 1986-87 as part of the Measure "C" Initiative study. The Measure "C" Initiative and General Plan studies used 1987 as the base year for land use and traffic projections. This study establishes 1993 as the base year with all new traffic counts at the 17 study area intersections.

Street Peak Traffic Hours

The 1993 traffic counts were taken during the 7:00-9:00 a.m. and 4:00-6:00 p.m. peak traffic periods. It is recognized that each intersection within the study area has its own peak traffic periods. However, this study looks at Tiburon Boulevard as a complete entity and uses the morning and afternoon peak traffic hours for the Tiburon Boulevard system rather than the peak hours of the individual intersections. Intersection traffic counts were taken during the period of February 25, 1993, to March 11, 1993.

An analysis of the intersection counts reveals that the morning peak hour of an average weekday occurs between 8:00 and 9:15 a.m. The afternoon peak hour occurs between 4:30 and 6:00 p.m. For purposes of this study it is assumed that the morning street peak hour for Tiburon Boulevard begins at 8:00 a.m. and the afternoon street peak hour begins at 5:00 p.m.

System Peak Hour Intersection Volumes

The turning movement volumes of the individual intersections were analyzed on a traffic model of Tiburon Boulevard. Virtually all of the traffic entering or exiting Tiburon Boulevard does so at public street intersections. The 17 study area intersections represent almost all of the traffic entering or exiting Tiburon Boulevard. Individual movement volumes at the individual intersections have been adjusted upwards or downwards in order to maintain a close degree of continuity of traffic flow from one intersection to the next along the street.

The 1993 system peak hour intersection volumes are shown on Table A, page 3. A comparison of the 1993 system peak hour volumes with the 1987 system peak hour volumes is shown on Table B, page 4. As can be seen on that table, the morning peak hour volumes have increased on the average of nearly six percent (+1% per year) since 1987 while the afternoon peak hour volumes have decreased on the average by nearly two percent (-0.3% per year).

The system peak hour intersection volumes shown in Table A are the ones used in the TRAFFIX model.

TABLE A
1993 SYSTEM INTERSECTION PEAK HOUR VOLUMES

TIBURON BOULEVARD INTERSECTION	PEAK HOUR	TOTAL APPROACH VOLUMES											
		SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
SB 101 OFF-RAMP	AM	855		825		600						1305	
	PM	1010		910		740						1245	
NB 101 OFF-RAMP	AM					890		140		110		1070	
	PM					685		345		315		1175	
FRONTAGE ROAD (THE WYE)	AM	55	5	10	10	1505	75	55	20	270	170	1000	40
	PM	45	15	10	10	1055	100	225	15	515	355	1100	65
N. KNOLL ROAD	AM	45			25	1545						980	80
	PM	15			15	1150						1305	85
STRAWBERRY/BAY VISTA	AM	25	2	15	5	1430	85	200	5	115	105	1000	15
	PM	5	3	5	5	1070	95	165	5	90	55	1225	25
BLACKFIELD/GREENWOOD	AM	200	10	70	100	1250	25	10	10	70	75	975	165
	PM	130	20	125	125	905	15	20	10	135	95	1100	200
CECILIA WAY	AM	105		10	10	1270						1015	40
	PM	45		20	15	1000						1155	90
REED RANCH ROAD	AM	55		20	20	1225						995	30
	PM	40		20	20	975						1115	60
TRESTLE GLEN BOULEVARD	AM	155		90	55	1080						890	125
	PM	165		35	40	830						950	185
STEWART DRIVE	AM	55		20	20	1080						945	35
	PM	45		10	15	825						925	60
AVENIDA MIRAFLORES	AM	125	1	70	45	970	1	1	1	3	0	840	125
	PM	45	0	30	30	795	0	1	1	0	1	860	75
ROCK HILL ROAD	AM	45		35	30	975						810	100
	PM	35		25	20	760						840	50
GILMARTIN DRIVE	AM	15		5	5	985						825	20
	PM	15		10	5	765						850	15
SAN RAFAEL AVENUE	AM					780	10	15		210	135	695	
	PM					610	5	10		160	180	680	
LYFORD DRIVE	AM	290		105	45	460						530	140
	PM	100		60	70	480						475	155
MAR WEST STREET	AM	45	0	35	25	455	5	5	2	5	2	565	70
	PM	40	2	25	20	510	10	5	3	1	2	490	45
BEACH ROAD	AM	80	30	15	20	150	30	25	25	105	95	160	55
	PM	75	35	20	20	160	55	55	85	180	100	190	55

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TABLE B
COMPARISON OF BASE VOLUMES, 1987 AND 1993

TIBURON BOULEVARD INTERSECTION	TOTAL APPROACH VOLUME					
	AM PEAK HOUR			PM PEAK HOUR		
	1987	1993	% CHANGE	1987	1993	% CHANGE
SB 101 OFF-RAMP	3245	3585	10.5%	3700	3905	5.5%
NB 101 OFF-RAMP	2485	2210	-11.1%	3015	2520	-16.4%
FRONTAGE ROAD (THE WYE)	3425	3215	-6.1%	3670	3510	-4.4%
N. KNOLL ROAD	2790	2675	-4.1%	2715	2570	-5.3%
STRAWBERRY/BAY VISTA	3080	3002	-2.5%	2880	2748	-4.6%
BALCKFIELD/GREENWOOD	2785	2960	6.3%	2900	2880	-0.7%
CECILIA WAY	2210	2450	10.9%	2195	2325	5.9%
REED RANCH ROAD	2110	2345	11.1%	2095	2230	6.4%
TRESTLE GLEN BLVD.	2125	2395	12.7%	2105	2205	4.8%
STEWART DRIVE	1855	2155	16.2%	1830	1880	2.7%
AVENIDA MIRAFLORES	1835	2182	18.9%	1810	1838	1.5%
ROCK HILL ROAD	1665	1750	5.1%	1690	1730	2.4%
GILMARTIN DRIVE	1570	1665	6.1%	1640	1660	1.2%
SAN RAFAEL AVENUE	1570	1845	17.5%	1645	1645	0.0%
LYFORD DRIVE	1380	1570	13.8%	1450	1340	-7.6%
MAR WEST STREET	1050	1214	15.6%	1260	1156	-8.3%
BEACH ROAD	990	790	-20.2%	1155	1030	-10.8%
TOTAL:	36170	38008		37755	37172	
AVG:			5.9%			-1.6%

Section II.

Traffic Model

The traffic model for the Tiburon peninsula utilizes the TRAFFIX[®] model program. The model network is developed to replicate the actual street system in terms of the relative arrangement of the connecting streets and highways. The traffic model network map is shown in Figure 1, page 6. The traffic zones (Z) and gates (G) are shown as well as the nodes which represent intersections (shaded rectangles). The network is not created to any scale. It is a schematic representation of the actual street and highway network. However, travel speed and distance are incorporated into the model for purposes of determining the shortest path (in terms of travel time) between specific zones and gates. The network contains 30 traffic zones and 13 traffic gates. The traffic zones are basically the same as used in the original 1987 traffic model.

Baseline traffic data is entered into the traffic model. The land use, trip generation and distribution parameters are entered into the model for the incremental development. The network programmer assigns vehicle trips to the network between the traffic zones (shown as a "Z" on the network map) and gates (shown as a "G" on the network map) on the basis of user defined paths and distribution percentages. Baseline traffic data can be factored up to account for background growth. Intersection geometry, control and other operational features of the intersection are entered into the model. The model then distributes the generated vehicle trips throughout the system, adding the incremental traffic to the baseline + growth traffic volumes, and calculates the levels of service at the designated intersections. The levels of service for the 17 designated intersections in the model are calculated according to the procedures contained in the Highway Capacity Manual.¹

The traffic model network can also provide projections of daily traffic as well as peak hour traffic. The model can also be used to assign traffic mitigation fees to specific projects on the basis of traffic through a specific intersection or on the basis of total traffic generated.

¹ Transportation Research Board, Special Report 209, 1985.

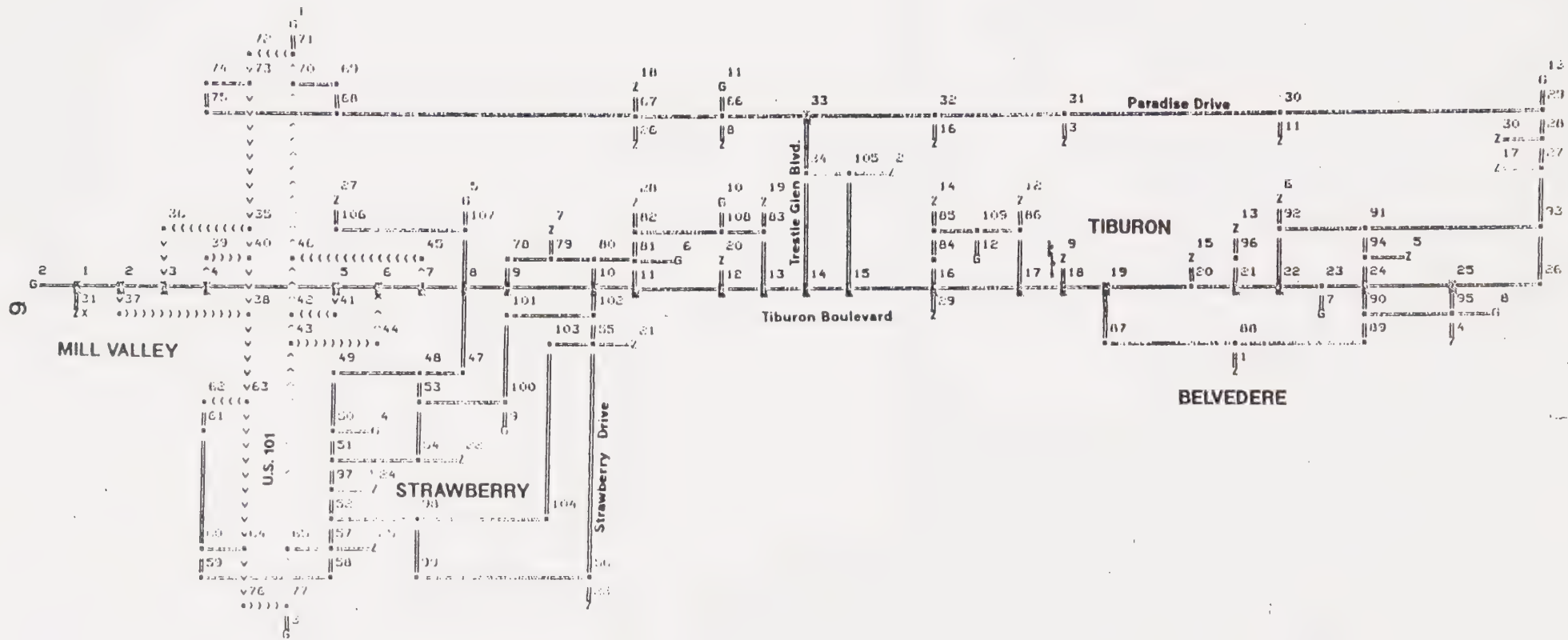


FIGURE 1
TRAFFIX MODEL NETWORK MAP

Section III.

Land Use Projections

The incremental land use projections, 1993 to 2005 are shown in Table C, pages 9 and 10. These projections were provided by the Tiburon Planning Department. Within the study area, the projected incremental development, including the 30 unit, single family, Marinero Estates project, can be summarized as follows:

Single family residential (SF) -	1059 DU
Secondary residential units (SU) -	84 DU
Multi-family residential	40 DU
Retail -	27 KSF
Office -	120 KSF
Library -	10 KSF
Marina -	159 Berth
College -	72 KSF

Not all of this incremental development is within the Tiburon Planning Area. A minor amount falls within the Cities of Belvedere and Mill Valley.

Section IV.

Vehicle Trip Generation Projections

Vehicle Trip Generation Rates

The trip generation rates for the residential developments were developed in 1987 from actual studies of single family and multi-family residential developments in Tiburon. Trip generation rates for the other land uses are based on data in the Institute of Transportation Engineers' publication, *Trip Generation*, 5th edition, 1991. The trip generation rates for the morning and afternoon street peak hours are shown in Table C, pages 9 and 10.

Vehicle Trip Generation Volumes

The projected vehicle trips for the incremental land use development are shown in Table C. The Marinero Estates project is located in Traffic Zone 13 (L) and is included in the table. Over 1300 incremental vehicle trips are projected to be added to the system by the year 2005 during the morning peak hour. Nearly 1900 incremental trips are projected to be added during the afternoon peak hour. However, not all of these vehicle trips will be added to Tiburon Boulevard.

**TABLE C
VEHICLE TRIP GENERATION**

TRAFFIC ZONE		1993-2005 LAND USE ADDITIONS			TRIP GENERATION RATES						TRIP GENERATION VOLUMES					
					AM PEAK HOUR			PM PEAK HOUR			AM PEAK HOUR			PM PEAK HOUR		
NEW	OLD	TYPE	SIZE	UNITS	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
1	A	SF	19	DU	0.25	0.50	0.75	0.70	0.45	1.15	5	10	14	13	9	22
2	B	SF	23	DU	0.25	0.50	0.75	0.70	0.45	1.15	6	12	17	16	10	26
		SU	5	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>1</u> 6	<u>1</u> 13	<u>2</u> 19	<u>1</u> 17	<u>1</u> 11	<u>2</u> 28
3	C	SF	41	DU	0.25	0.50	0.75	0.70	0.45	1.15	10	21	31	29	18	47
		SU	3	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>0</u> 11	<u>1</u> 21	<u>1</u> 32	<u>1</u> 29	<u>0</u> 19	<u>1</u> 48
4	D	RETAIL OFFICE	17	KSF	0.18	0.09	0.27	1.60	2.20	3.80	3	2	5	27	37	65
			0	KSF	2.10	0.40	2.50	0.40	2.40	2.80	<u>0</u> 3	<u>0</u> 2	<u>0</u> 5	<u>0</u> 27	<u>0</u> 37	<u>0</u> 65
5	D1	OFFICE SF	18	KSF	2.10	0.40	2.50	0.40	2.40	2.80	38	7	45	7	43	50
			10	DU	0.25	0.50	0.75	0.70	0.45	1.15	<u>3</u> 40	<u>5</u> 12	<u>8</u> 53	<u>7</u> 14	<u>5</u> 48	<u>12</u> 62
6	D2	LIBRARY	10	KSF	0.82	0.17	0.99	2.28	2.46	4.74	8	2	10	23	25	47
7	E	SF	54	DU	0.25	0.50	0.75	0.70	0.45	1.15	14	27	41	38	24	62
		SU	4	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>0</u> 14	<u>1</u> 28	<u>1</u> 42	<u>1</u> 39	<u>0</u> 25	<u>1</u> 63
8	F	SF	9	DU	0.25	0.50	0.75	0.70	0.45	1.15	2	5	7	6	4	10
		SU	3	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>0</u> 3	<u>1</u> 5	<u>1</u> 8	<u>1</u> 7	<u>0</u> 4	<u>1</u> 11
9	G	SF	33	DU	0.25	0.50	0.75	0.70	0.45	1.15	8	17	25	23	15	38
		SU	6	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>1</u> 9	<u>1</u> 18	<u>2</u> 27	<u>1</u> 24	<u>1</u> 15	<u>2</u> 40
	H	Combined with TZ 7(E)														
11	I	SF	11	DU	0.25	0.50	0.75	0.70	0.45	1.15	3	6	8	8	5	13
		SU	4	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>0</u> 3	<u>1</u> 6	<u>1</u> 9	<u>1</u> 9	<u>0</u> 5	<u>1</u> 14
	K	Combined with TZ 2(B)														
13	L	SF	86	DU	0.25	0.50	0.75	0.70	0.45	1.15	22	43	65	60	39	99
		SU	6	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>1</u> 22	<u>1</u> 44	<u>2</u> 66	<u>1</u> 61	<u>1</u> 39	<u>2</u> 101
14	M	SF	1	DU	0.25	0.50	0.75	0.70	0.45	1.15	0	1	1	1	0	1
		SU	6	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>1</u> 1	<u>1</u> 2	<u>2</u> 3	<u>1</u> 2	<u>1</u> 1	<u>2</u> 3
12	M2	SF	6	DU	0.25	0.50	0.75	0.70	0.45	1.15	2	3	5	4	3	7
		SU	2	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>0</u> 2	<u>0</u> 3	<u>1</u> 5	<u>0</u> 5	<u>0</u> 3	<u>1</u> 8
15	L2	MF	0	DU	0.10	0.40	0.50	0.40	0.10	0.50	0	0	0	0	0	0
16	N	SF	21	DU	0.25	0.50	0.75	0.70	0.45	1.15	5	11	16	15	9	24
17	O	SF	27	DU	0.25	0.50	0.75	0.70	0.45	1.15	7	14	20	19	12	31
		SU	10	DU	0.10	0.20	0.30	0.20	0.10	0.30	<u>1</u> 8	<u>2</u> 16	<u>3</u> 23	<u>2</u> 21	<u>1</u> 13	<u>3</u> 34

**TABLE C
VEHICLE TRIP GENERATION**

TRAFFIC ZONE		1993-2005 LAND USE ADDITIONS			TRIP GENERATION RATES						TRIP GENERATION VOLUMES					
					AM PEAK HOUR			PM PEAK HOUR			AM PEAK HOUR			PM PEAK HOUR		
NEW	OLD	TYPE	SIZE	UNITS	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
18	P	SF	60	DU	0.25	0.50	0.75	0.70	0.45	1.15	15	30	45	42	27	69
		SU	5	DU	0.10	0.20	0.30	0.20	0.10	0.30	1	1	2	1	1	2
		MARINA	159	BERTH	0.06	0.03	0.09	0.06	0.12	0.18	10	5	14	10	19	29
											25	36	61	53	47	99
19	R	SF	9	DU	0.25	0.50	0.75	0.70	0.45	1.15	2	5	7	6	4	10
		SU	3	DU	0.10	0.20	0.30	0.20	0.10	0.30	0	1	1	1	0	1
												3	5	8	7	4
20	R1	SF	18	DU	0.25	0.50	0.75	0.70	0.45	1.15	5	9	14	13	8	21
		SU	3	DU	0.10	0.20	0.30	0.20	0.10	0.30	0	1	1	1	0	1
												5	10	14	13	8
21	S	SF	111	DU	0.25	0.50	0.75	0.70	0.45	1.15	28	56	83	78	50	128
22	S1	SF	63	DU	0.25	0.50	0.75	0.70	0.45	1.15	16	32	47	44	28	72
23	S2	SF	69	DU	0.25	0.50	0.75	0.70	0.45	1.15	17	35	52	48	31	79
		MF	30	DU	0.10	0.40	0.50	0.40	0.10	0.50	3	12	15	12	3	15
		COLLEGE	72	KSF	2.20	0.20	2.40	0.60	1.10	1.70	158	14	173	43	79	122
											179	61	240	104	113	217
24	S3	OFFICE	100	KSF	2.10	0.40	2.50	0.40	2.40	2.80	210	40	250	40	240	280
25	S4	SF	64	DU	0.25	0.50	0.75	0.70	0.45	1.15	16	32	48	45	29	74
26	U	SF	35	DU	0.25	0.50	0.75	0.70	0.45	1.15	9	18	26	25	16	40
		SU	4	DU	0.10	0.20	0.30	0.20	0.10	0.30	0	1	1	1	0	1
											9	18	27	25	16	41
27	V	SF	30	DU	0.25	0.50	0.75	0.70	0.45	1.15	8	15	23	21	14	35
		MF	10	DU	0.10	0.40	0.50	0.40	0.10	0.50	1	4	5	4	1	5
												9	19	28	25	15
28	W	SF	75	DU	0.25	0.50	0.75	0.70	0.45	1.15	19	38	56	53	34	86
		SU	20	DU	0.10	0.20	0.30	0.20	0.10	0.30	2	4	6	4	2	6
												21	42	62	57	36
29	X	SF	1	DU	0.25	0.50	0.75	0.70	0.45	1.15	0	1	1	1	0	1
30	Z	SF	55	DU	0.25	0.50	0.75	0.70	0.45	1.15	14	28	41	39	25	63
31	A4	SF	128	DU	0.25	0.50	0.75	0.70	0.45	1.15	32	64	96	90	58	147
		OFFICE	2	KSF	2.10	0.40	2.50	0.40	2.40	2.80	4	1	5	1	5	6
		RETAIL	10	KSF	0.18	0.09	0.27	1.60	2.20	3.80	2	1	3	15	21	36
												38	66	104	106	83
RKH 03/31/93											TOTAL: 705 624 1329 927 950 1876					

Section V.

Vehicle Trip Distribution Assumptions

The vehicle trip distribution assumptions developed for the Measure "C" Initiative study and subsequent General Plan traffic study have been compared to more recent distributional data obtained from the County of Marin's traffic model² and have been found to be in reasonable agreement with the County model.

Tables D and D1, pages 12 and 13, show the assumed distributions between the 30 traffic zones and the 13 traffic gates. Three of the gates are external gates to the model (US 101 and E. Blithedale Ave.) Five of the gates represent non-residential, commercial areas within the study area. Five of the gates represent large residential areas. Because of the nature of the TRAFFIX model, there is some minor duplication of vehicle trips internal to the study area for the commercial developments, but these commercially generated volumes are so small in comparison with the residential development volumes that the error is well within the range of accuracy of the baseline traffic volumes.

² Brook, Art, Marin County Department of Public Works, 2/27/93.

TABLE D
VEHICLE TRIP DISTRIBUTION
AM PEAK HOUR

TRAFFIC ZONE			GATE														TOTAL
			101N	MV	101S	STRW	WYE	COVE	B'WLK	CBD	STRW	W.TIB	W.PAR	TIB	E.TIB		
			COMM	COMM	COMM	COMM	COMM	RES	RES	RES	RES	RES					
NEW	OLD	CO.	1	2	3	4	5	6	7	8	9	10	11	12	13		
1	A	103	38%	15%	20%	5%	3%	3%	9%	7%						100%	
2	B	101	38%	15%	20%	7%	4%	3%	7%	6%						100%	
3	C	101	38%	15%	20%	7%	4%	3%	7%	6%						100%	
4	D	102	55%	20%	10%						4%	3%	1%	4%	3%	100%	
5	D1	102	52%	19%	12%	1%	1%	1%	1%	1%	3%	2%	1%	3%	2%	100%	
6	D2	102	55%	20%	10%						4%	3%	1%	4%	3%	100%	
7	E	100	39%	16%	21%	8%	4%	4%	3%	5%						100%	
8	F	100	39%	16%	21%	8%	4%	4%	3%	5%						100%	
9	G	101	38%	15%	20%	7%	4%	3%	7%	6%						100%	
11	I	101	38%	15%	20%	7%	4%	3%	7%	6%						100%	
12	M2	101	38%	15%	20%	7%	4%	3%	7%	6%						100%	
13	L	102	38%	15%	20%	5%	3%	3%	9%	7%						100%	
14	M	101	38%	15%	20%	7%	4%	3%	7%	6%						100%	
15	L2	102	38%	15%	20%	5%	3%	3%	9%	7%						100%	
16	N	101	38%	15%	20%	7%	4%	3%	7%	6%						100%	
17	O	102	38%	15%	20%	5%	3%	3%	9%	7%						100%	
18	P	100	39%	16%	21%	8%	4%	4%	3%	5%						100%	
19	R	100	39%	16%	21%	8%	4%	4%	3%	5%						100%	
20	R1	100	39%	16%	21%	8%	4%	4%	3%	5%						100%	
21	S	99	40%	21%	22%	8%	4%	2%	1%	2%						100%	
22	S1	99	40%	21%	22%	8%	4%	2%	1%	2%						100%	
23	S2	99	40%	21%	22%	8%	4%	2%	1%	2%						100%	
24	S3	99	55%	20%	10%						3%	5%	2%	4%	1%	100%	
25	S4	99	40%	21%	22%	8%	4%	2%	1%	2%						100%	
26	U	100	39%	16%	21%	8%	4%	4%	3%	5%						100%	
27	V	100	39%	16%	21%	8%	4%	4%	3%	5%						100%	
28	W	100	39%	16%	21%	8%	4%	4%	3%	5%						100%	
29	X	101	38%	15%	20%	7%	4%	3%	7%	6%						100%	
30	Z	102	38%	15%	20%	5%	3%	3%	9%	7%						100%	
31	A4	98	44%	32%	14%	5%	2%	1%	1%	1%						100%	

RKH 3/27/93

**TABLE D1
VEHICLE TRIP DISTRIBUTION
PM PEAK HOUR**

TRAFFIC ZONE			GATE													
			101N	MV	101S	STRW	WYE	COVE	B'WLK	CBD	STRW	W.TIB	W.PAR	TIB	E.TIB	TOTAL
						COMM	COMM	COMM	COMM	COMM	RES	RES	RES	RES	RES	
NEW	OLD	CO.	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	A	103	31%	8%	25%	5%	3%	3%	15%	10%						100%
2	B	101	32%	9%	25%	9%	4%	4%	10%	7%						100%
3	C	101	32%	9%	25%	9%	4%	4%	10%	7%						100%
4	D	102	30%	5%	15%						5%	10%	5%	15%	15%	100%
5	D1	102	30%	6%	17%	2%	1%	1%	2%	1%	4%	8%	4%	12%	12%	100%
6	D2	102									5%	25%	5%	40%	25%	100%
7	E	100	36%	10%	24%	11%	4%	6%	5%	4%						100%
8	F	100	36%	10%	24%	11%	4%	6%	5%	4%						100%
9	G	101	32%	9%	25%	9%	4%	4%	10%	7%						100%
11	I	101	32%	9%	25%	9%	4%	4%	10%	7%						100%
12	M2	101	32%	9%	25%	9%	4%	4%	10%	7%						100%
13	L	102	31%	8%	25%	5%	3%	3%	15%	10%						100%
14	M	101	32%	9%	25%	9%	4%	4%	10%	7%						100%
15	L2	102	31%	8%	25%	5%	3%	3%	15%	10%						100%
16	N	101	32%	9%	25%	9%	4%	4%	10%	7%						100%
17	O	102	31%	8%	25%	5%	3%	3%	15%	10%						100%
18	P	100	36%	10%	24%	11%	4%	6%	5%	4%						100%
19	R	100	36%	10%	24%	11%	4%	6%	5%	4%						100%
20	R1	100	36%	10%	24%	11%	4%	6%	5%	4%						100%
21	S	99	33%	15%	26%	9%	6%	6%	3%	2%						100%
22	S1	99	33%	15%	26%	9%	6%	6%	3%	2%						100%
23	S2	99	33%	15%	26%	9%	6%	6%	3%	2%						100%
24	S3	99	54%	19%	9%						3%	5%	2%	5%	3%	100%
25	S4	99	33%	15%	26%	9%	6%	6%	3%	2%						100%
26	U	100	36%	10%	24%	11%	4%	6%	5%	4%						100%
27	V	100	36%	10%	24%	11%	4%	6%	5%	4%						100%
28	W	100	36%	10%	24%	11%	4%	6%	5%	4%						100%
29	X	101	32%	9%	25%	9%	4%	4%	10%	7%						100%
30	Z	102	31%	8%	25%	5%	3%	3%	15%	10%						100%
31	A4	98	39%	35%	12%	7%	2%	2%	2%	1%						100%

RKH 3/26/93

Section VI.

Traffic Impacts of Development

The TRAFFIX model analysis output is contained in Appendix B and is summarized in Table E, page 15. With the exception of the STOP controlled intersections all but two of the signal controlled intersections will maintain acceptable (C or better) levels of service (LoS). The E. Blithedale/101 Off-Ramp intersection is proposed to be improved with an additional lane on the off-ramp. This improvement project is planned for the near term.

The LoS of the Tiburon Blvd./Frontage Road intersection is projected to worsen from C to D during the afternoon peak hour. The LoS of the Tiburon Blvd./Trestle Glen Blvd. intersection is expected to worsen from B to D during the morning peak hour. As described in the General Plan both intersections are designated for improvement by the year 2005.

Of the six STOP controlled intersections, three are designated for signalization by the year 2005: Cecilia Way, Reed Ranch Road, and Mar West Street. Upon signalization the LoS at these three intersections is expected to improve to A during all hours of the day.

Impacts of the Marinero Estates Project

The LoS of the existing signalized intersections is expected to remain unchanged as a result of the development of the Marinero Estates project. Average stopped delay will increase only slightly during some peak hours at some of the intersections. The incremental impact of the project will not be discernable to the average driver.

At the intersection most directly impacted by the project, Lyford Drive, the LoS will remain unchanged at B, and the average stopped delay per vehicle through the intersection will increase by less than one-half of a second during the peak hours of the day.

TABLE E
INTERSECTION LEVEL OF SERVICE SUMMARY

INTERSECTION	PEAK HOUR	1993 BASE		1993 IMPROVED		2005 W/O PROJECT		2005 WITH PROJECT		2005 WITH PROJECT IMPROVED	
		DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
E. Blithedale Ave. & Southbound 101 Off	AM	8.7	B	8.3	B(1)	17.9	C	18.0	C	13.2	B(1)
	PM	9.4	B	9.0	B(1)	28.5**	D	27.0	D	17.3	C(1)
Tiburon Blvd. & Northbound 101 Off	AM	2.1	A			2.3	A	2.3	A		
	PM	4.1	A			5.0	A	5.0	A		
Tiburon Blvd. & Frontage Rd.	AM	10.9	B			16.4	C	16.5	C	9.3	B(2)
	PM	16.0	C			35.8	D	36.0	D	14.0	B(2)
Tiburon Blvd. & N. Knoll Dr.	AM	*	E			*	E	*	E		
	PM	*	D			*	E	*	E		
Tiburon Blvd. & Strawberry Dr.	AM	4.1	A			5.6	B	5.6	B		
	PM	3.8	A			6.1	B	6.1	B		
Tiburon Blvd. & Blackfield/Greenwood	AM	4.9	A			6.5	B	6.6	B		
	PM	6.1	B			8.2	B	8.2	B		
Tiburon Blvd. & Cecilia Way	AM	*	E			*	E	*	E	2.7	A(3)
	PM	*	E			*	E	*	E	2.5	A(3)
Tiburon Blvd. & Reed Ranch Road	AM	*	E			*	E	*	E	2.1	A(3)
	PM	*	E			*	E	*	E	2.2	A(3)
Tiburon Blvd. & Trestle Glen Blvd.	AM	8.0	B			25.1	D	26.4	D	5.0	A(4)
	PM	5.3	B			12.5	B	12.5	B	4.6	A(4)
Tiburon Blvd. & Stewart Dr.	AM	*	E			*	E	*	E		
	PM	*	E			*	E	*	E		
Tiburon Blvd. & Avenida Miraflores	AM	5.8	B			10.6	B	11.1	B		
	PM	3.0	A			5.1	B	5.2	B		
Tiburon Blvd. & Rock Hill Rd.	AM	4.2	A			8.0	B	8.3	B		
	PM	2.4	A			4.5	A	4.5	A		
Tiburon Blvd. & Gilmartin Dr.	AM	*	D			*	D	*	D		
	PM	*	D			*	E	*	E		
Tiburon Blvd. & San Rafael Ave.	AM	3.8	A			5.5	B	5.6	B		
	PM	2.9	A			3.9	A	3.9	A		
Tiburon Blvd. & Lyford Dr.	AM	6.1	B			6.9	B	7.1	B		
	PM	4.6	A			5.5	B	5.8	B		
Tiburon Blvd. & Mar West St.	AM	*	D			*	E	*	E	2.3	A(3)
	PM	*	D			*	E	*	E	2.3	A(3)
Tiburon Blvd. & Beach Rd.	AM	4.1	A			4.1	A	4.1	A		
	PM	4.9	A			5.3	B	5.3	B		

* LoS of the controlled movement with the longest delay at an intersection with one or more STOP controlled approaches.

** Calculated value. Actual value should be less than LoS with the project.

(1) Four lane approach on off-ramp.

(2) Additional through lane each way on Tiburon Blvd. and additional left-turn lane on northbound frontage road.

(3) Signalize.

15

(4) Additional through lane each way on Tiburon Blvd.

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MAY 04 1993

Section VII.

General Plan Circulation Improvements/Mitigation Measures

DEPARTMENT OF
COMMUNITY DEVELOPMENT

Table F below lists the mitigation measures contained in the adopted General Plan and whether or not these measures are still supported by the analyses in this study. The table also indicates whether or not the project will require any additional mitigation measure.

TABLE F MITIGATION MEASURES			
INTERSECTION	GENERAL PLAN MITIGATION MEASURE	SUPPORTED BY 1993 STUDY?	INCREMENTAL EFFECT OF PROJECT?
E. Blithedale/SB 101 Off-Ramp	Widen off-ramp to four lanes	Supported.	No additional mitigation required.
Tiburon Blvd./NB 101 Off-Ramp	Widen off-ramp to four lanes	Not supported.	None.
Tiburon Blvd./ Frontage Road	Add through lane each way on Tiburon Blvd.; add left- turn lane to NB Frontage Rd.; formalize right-turn lanes on Tiburon Blvd.	Supported.	No additional mitigation required.
Tiburon Blvd./N. Knoll Road	Signalize; add through lane each way on Tiburon Blvd.	Not supported.	None.
Tiburon Blvd./ Strawberry Dr.	Add left-turn lane to NB Strawberry approach	Not supported.	None.
Tiburon Blvd./ Blackfield Drive	Add left-turn lanes to Blackfield and Greenwood Beach approaches	Not supported.	None.
Tiburon Blvd./Cecilia Way	Signalize.	Supported.	No additional mitigation required.
Tiburon Blvd./Reed Ranch Road	Signalize.	See coordination measure.	None.
Tiburon Blvd./Trestle Glen Blvd.	Add through lane each way on Tiburon Blvd. through intersection.	Supported.	No additional mitigation required.
Tiburon Blvd./Mar West Street	Signalize.	Supported.	No additional mitigation required.

**TABLE F
MITIGATION MEASURES**

INTERSECTION	GENERAL PLAN MITIGATION MEASURE	SUPPORTED BY 1993 STUDY?	INCREMENTAL EFFECT OF PROJECT?
SB 101 off-ramp to N. Knoll Rd.	Coordination of traffic signals	Supported. Will need Caltrans cooperation. Limits should be SB 101 off-ramp to Frontage Rd.	None.
N. Knoll Rd. to Blackfield Dr.	Coordination of traffic signals	Supported. Limits should be Frontage Road to Blackfield	None.
Blackfield Dr. to Trestle Glen Blvd.	Coordination of traffic signals	Not supported for existing conditions but will be supported by 2005. System should include signalization of Cecilia Way and Reed Ranch Rd. even though Reed Ranch Rd. is not projected to meet volume warrants for signalization.	None.

An indication of the need for coordination of adjacent traffic signals is easily determined by dividing the 2-way volume of traffic between the intersections by the distance (in feet) between the intersections. This ratio is known as the coupling or coordination index, CI. With a CI of 0.50 or more, coordination should be considered. However, there are other factors such as the spacing of intersections, variation in intersection volume, signal phasing, cycle lengths, etc. that must also be considered when evaluating the need for coordination of traffic signals.

Table G on the following page lists the CI's for existing and future traffic volumes on Tiburon Blvd. As can be seen, using the CI alone, Tiburon Blvd. is a candidate for future coordination of all of its traffic signals from Beach Road to the freeway.

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TABLE G
TRAFFIC SIGNAL COORDINATION INDICES

TIBURON BOULEVARD INTERSECTION	DISTANCE (ft.)	1993 EXISTING			
		AM PEAK HOUR VOLUME	CI	PM PEAK HOUR VOLUME	CI
FRONTAGE ROAD					
	2600	2635	1.01	2500	0.96
STRAWBERRY/BAY VISTA					
	1100	2735	2.49	2565	2.33
BLACKFIELD/GREENWOOD					
	4750	2330	0.49	1535	0.32
TRESTLE GLEN BLVD.					
	2800	2080	0.74	1825	0.65
AVENIDA MIRAFLORES					
	2000	1930	0.97	1685	0.84
ROCK HILL ROAD					
	2300	1835	0.80	1635	0.71
SAN RAFAEL AVE.					
	2500	1460	0.58	1270	0.51
LYFORD DRIVE					
	2500	1040	0.42	1010	0.40
BEACH ROAD					
TIBURON BOULEVARD INTERSECTION	DISTANCE (ft.)	2005			
		AM PEAK HOUR VOLUME	CI	PM PEAK HOUR VOLUME	CI
FRONTAGE ROAD					
	2600	3140	1.21	3360	1.29
STRAWBERRY/BAY VISTA					
	1100	3470	3.15	3440	3.13
BLACKFIELD/GREENWOOD					
	950	3065	3.23	3050	3.21
CECILIA WAY					
	2300	2910	1.27	2920	1.27
REED RANCH ROAD					
	1500	2845	1.90	2860	1.91
TRESTLE GLEN BLVD.					
	2800	2590	0.93	2445	0.87
AVENIDA MIRAFLORES					
	2000	2415	1.21	2265	1.13
ROCK HILL ROAD					
	2300	2290	1.00	2235	0.97
SAN RAFAEL AVE.					
	2500	1850	0.74	1795	0.72
LYFORD DRIVE					
	1400	1445	1.03	1540	1.10
MAR WEST ST.					
	1100	1115	1.01	1295	1.18
BEACH ROAD					

CI = Coordination Index, 2-way volume/distance(ft.)

TIBURON GENERAL PLAN

APPENDIX D: 1987 BASELINE TRAFFIC COUNTS

a:circ94.fin

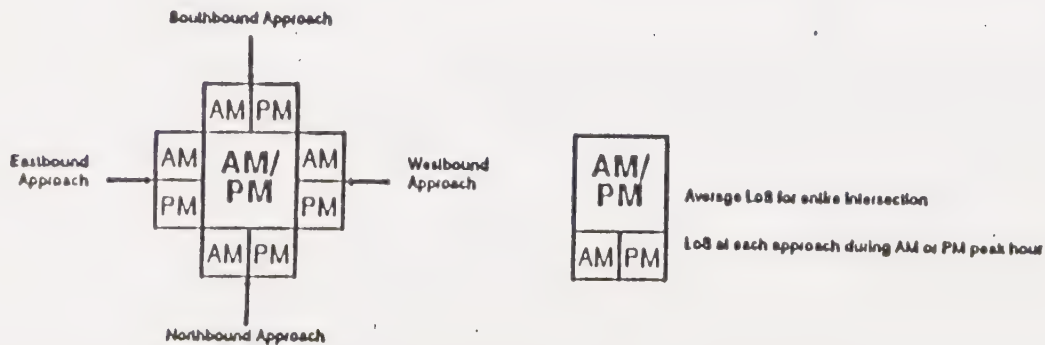
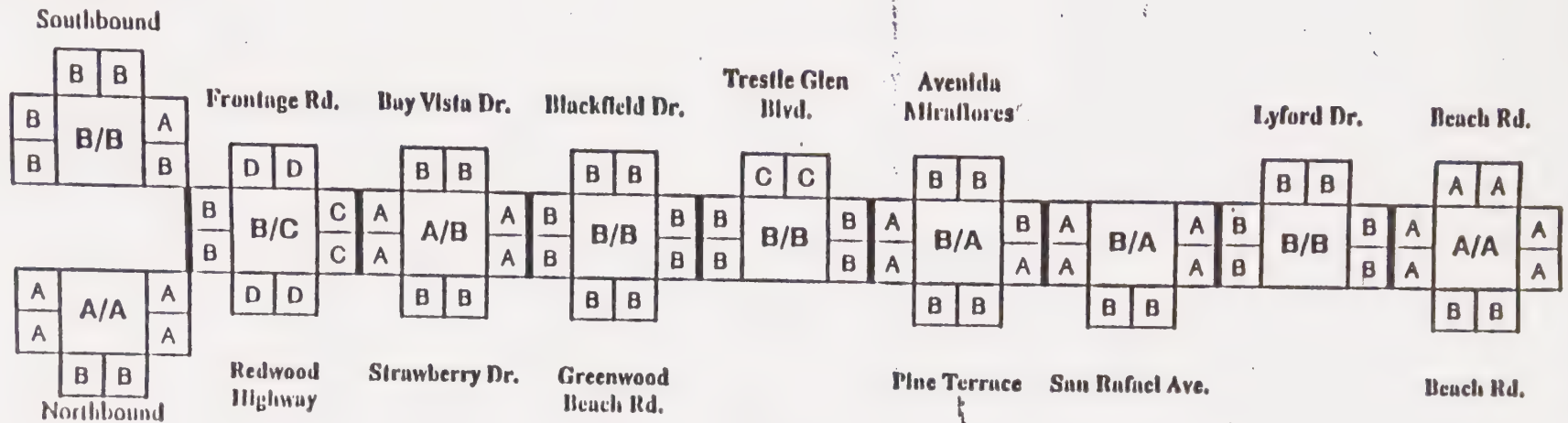
1987 BASE CONDITIONS. LEVELS OF SERVICE. SIGNALIZED INTERSECTIONS

TIBURON BLVD. INTERSECTION	PEAK HOUR	AVG. CYCLE LENGTH (sec.)	APPROACH				TOTAL I/S
			EB	WB	NB	SB	
			DELAY (s/veh.) LoS	DELAY (s/veh.) LoS	DELAY (s/veh.) LoS	DELAY (s/veh.) LoS	DELAY (s/veh.) LoS
SB OFF-RAMP	AM	50	8.8 B	4.4 A	----	10.9 B	9.2 B
	PM	50	7.7 B	7.7 B	----	8.8 B	8.4 B
NB OFF-RAMP	AM	30	1.6 A	1.4 A	7.9 B	----	2.5 A
	PM	30	3.5 A	2.4 A	7.1 B	----	4.3 A
FRONTAGE RD.	AM	90	9.4 B	15.4 C	28.7 D	26.2 D	14.6 B
	PM	90	14.9 B	16.2 C	28.2 D	25.9 D	17.9 C
STRAWBERRY DR.	AM	45	3.5 A	4.3 A	11.8 B	9.9 B	4.7 A
	PM	45	4.4 A	4.2 A	10.4 B	9.0 B	5.1 B
BLACKFIELD DR.	AM	50	5.5 B	6.7 B	11.4 B	9.3 B	6.8 B
	PM	50	6.7 B	10.5 B	9.6 B	9.9 B	8.5 B
TRESTLE GLEN BLVD.	AM	90	8.5 B	13.7 B	----	21.2 C	12.7 B
	PM	50	5.8 B	5.3 B	----	11.5 C	6.0 B
AVENIDA MIRAFLORES	AM	50	3.7 A	6.1 B	8.9 B	10.0 B	5.5 B
	PM	50	4.8 A	3.9 A	8.9 B	9.2 B	4.7 A
SAN RAFAEL AVE.	AM	40	2.3 A	3.4 A	9.0 B	----	3.7 B
	PM	40	2.4 A	0.3 A	8.3 B	----	2.2 A
LYFORD DR.	AM	45	5.8 B	5.2 B	----	8.5 B	6.2 B
	PM	40	6.2 B	6.8 B	----	6.2 B	6.4 B
BEACH RD.	AM	40	4.1 A	3.8 A	5.6 B	4.8 A	4.5 A
	PM	40	5.0 A	4.8 A	5.2 B	4.1 A	4.9 A

EB - Eastbound
 WB - Westbound
 NB - Northbound
 SB - Southbound
 I/S - Intersection
 AVG. - Average
 sec. - Seconds
 LoS - Level of Service
 s/veh. - Seconds per vehicle

Source: RKN, Transportation Engineers

U.S. Highway 101



Signalized Intersections, Levels of Service Along Tiburon Boulevard, 1987, Assuming No Improvements

1987 BASE CONDITONS. LEVELS OF SERVICE. STOP CONTROLLED INTERSECTIONS

TIBURON BLVD. INTERSECTION	CONTROLLED MOVEMENT	AM PEAK HR.	PM PEAK HR.
		RESERVE CAPACITY LoS	RESERVE CAPACITY LoS
N. KNOLL DR.	Knoll Dr. left	N11 F	N11 F
	Knoll Dr. right	48 E	189 D
	Tiburon Blvd. left	48 E	129 D
CECILIA WAY	Cecilia Way left	N11 F	2 E
	Cecilia Way right	81 E	288 C
	Tiburon Blvd. left	183 D	296 C
REED RANCH RD.	Reed Ranch Rd. left	N11 F	2 E
	Reed Ranch Rd. right	137 D	303 B
	Tiburon Blvd. left	207 C	359 B
STEWART DR.	Stewart Dr. left	59 E	82 E
	Stewart Dr. right	323 B	488 A
	Tiburon Blvd. left	458 A	561 A
ROCK HILL DR.	Rock Hill Dr. left	80 E	106 D
	Rock Hill Dr. right	413 A	508 A
	Tiburon Blvd. left	530 A	615 A
GILMARTIN DR.	Gilmartin Dr. left	114 D	118 D
	Gilmartin Dr. right	466 A	530 A
	Tiburon Blvd. left	571 A	640 A
MAR WEST ST.	Mar West St. southbound	213 C	408 A
	Mar West St. northbound	559 A	312 B

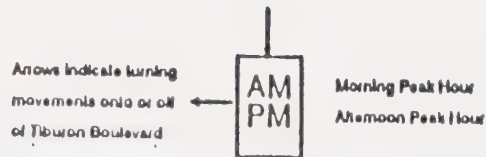
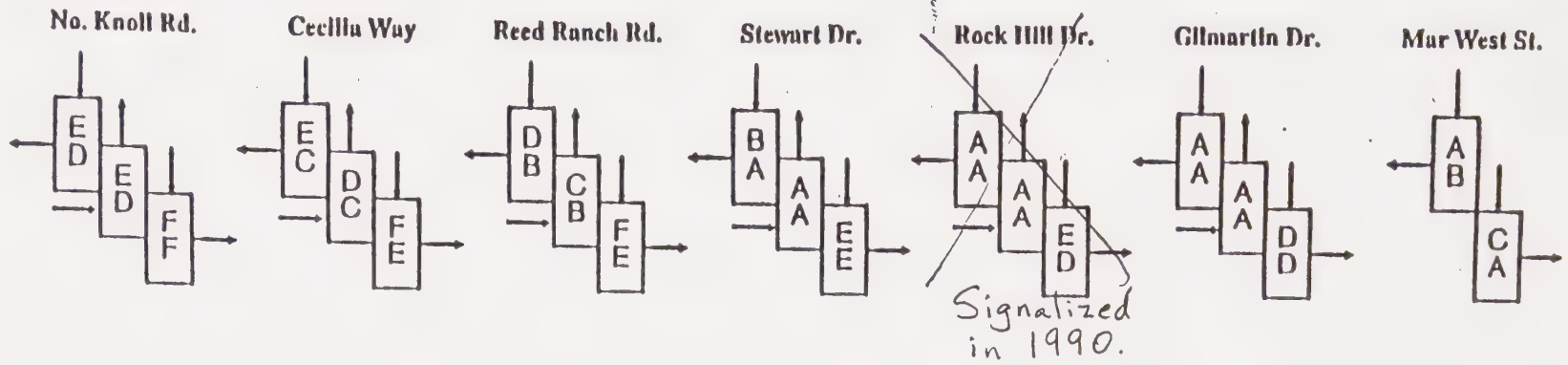
Signalized
in 1990

Reserve Capacity is expressed in passenger cars per hour.

LoS - Level of Service

Hr. - Hour

Source: RKM. Transportation Engineers



Stop-Controlled Intersections, Levels of Service Along Tiburon Boulevard, 1987, Assuming No Improvements

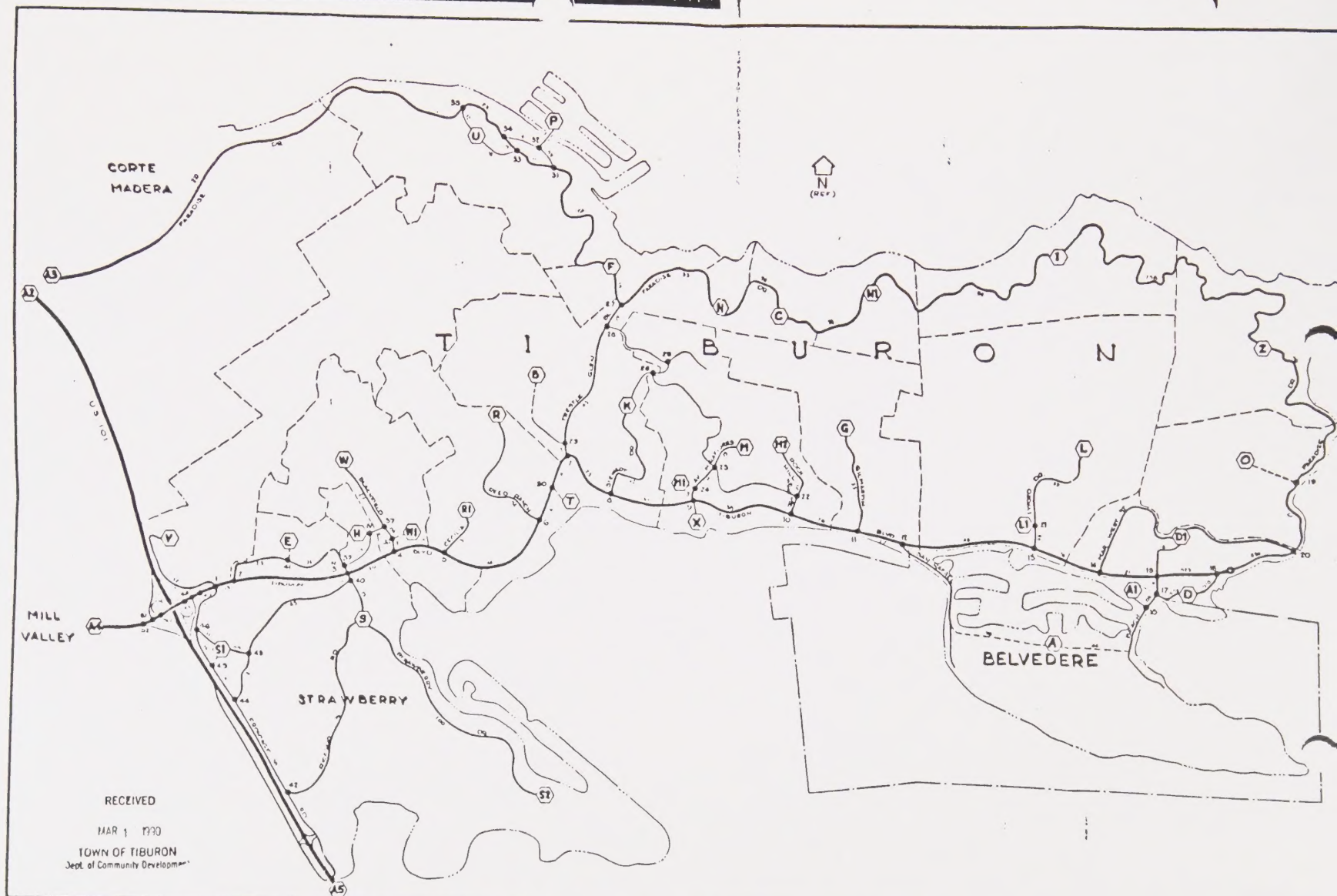
1987 TIBURON BOULEVARD OPERATIONAL ANALYSIS. BY SEGMENT

SEGMENT		PEAK		g/C CAPY.		VOL.	
BETWEEN	AND	HOUR	DIR.	LANES	(%) (vph)	(vph)	V/C
Frontage Road.	Strawberry Dr.	AM	EB	2	0.67	2680	1025 0.38
			WB	2	0.59	2360	1635 0.69
		PM	EB	2	0.58	2320	1440 0.62
			WB	2	0.48	1920	1090 0.57
Strawberry Dr.	Blackfield Dr.	AM	EB	2	0.62	2480	1000 0.40
			WB	2	0.67	2680	1530 0.57
		PM	EB	2	0.58	2320	1515 0.65
			WB	2	0.62	2480	1045 0.42
Blackfield Dr.	Trestle Glen Blvd.	AM	EB	2	0.77	3080	810 0.26
			WB	2	0.54	2160	1325 0.61
		PM	EB	2	0.80	3200	1195 0.37
			WB	2	0.34	1360	860 0.63
Trestle Glen Blvd.	Avenida Miraflores	AM	EB	1	0.68	1360	750 0.55
			WB	1	0.66	1320	1050 0.80
		PM	EB	1	0.62	1240	965 0.78
			WB	1	0.66	1320	780 0.59
Avenida Miraflores	San Rafael Ave.	AM	EB	1	0.65	1300	705 0.54
			WB	1	0.66	1320	890 0.67
		PM	EB	1	0.65	1300	885 0.68
			WB	1	0.66	1320	755 0.57
San Rafael Ave.	Lyford Dr.	AM	EB	1	0.64	1280	570 0.45
			WB	1	0.65	1300	650 0.50
		PM	EB	1	0.60	1200	700 0.58
			WB	1	0.65	1300	595 0.46
Lyford Dr.	Beach Rd.	AM	EB	1	0.50	1000	450 0.45
			WB	1	0.49	980	470 0.48
		PM	EB	1	0.45	900	470 0.52
			WB	1	0.43	860	560 0.65

DIR. - Direction
 EB - Eastbound
 WB - Westbound
 NB - Northbound
 SB - Southbound
 g/C - Capacity adjustment

CAPY. - Capacity
 VOL. - Volume
 vph. - Vehicles per hour
 V/C - Volume to Capacity
 LoS - Level of Service

Source: RKH, Transportation Engineers



<table border="1"> <tr> <td>DATE</td> <td>10/1/88</td> </tr> <tr> <td>BY</td> <td>07013</td> </tr> </table>	DATE	10/1/88	BY	07013	RKLH	TOWN OF TIBURON	TRAFFIC MODEL NETWORK MAP
	DATE	10/1/88					
	BY	07013					
07013							

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